Approval Number: Not Assigned **NOC ID: 510**

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: CONSTRUCTION OF (WTP) LABORATORY

Emission Unit Name: LB-C2 **Emission Unit ID** 557

This is a MINOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **BARCT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	HEPA	1	One stage of HEPA filtration. A total of ten banks of primary HEPAs nine in operation and one in standby. Each bank contains four filters.
	Exhaust Fan	2	Two in operation.

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
WAC 246-247-075	Appendix B, Method 114(3) and (4)	Gross Alpha and Gross Beta/Gamma	Shall be determined prior to cold commissioning
Sampling Requirements:	Record Sampling		

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

12/05/2002 NOC received June 26, 2002.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).
2) This emission unit does not have an abated PTE. This emission unit does not have an unabated PTE.
3) **No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:**
   the receipt, preparation and analysis of radioactive samples from the Pretreatment, LAW, and HLW production facilities. See process descriptions listed below for the individual emission units.
4) This NOC does not have "Annual Possession Quantity" limits.

5) The WDOH has determined that BARCT for emission unit LB-C2 is a system comprising the following control technology, ancillary equipment, protective features, and protective equipment, in the following order: a single stage of High-Efficiency Particulate Air (HEPA) filtration, and Exhaust Fans.

   The maximum differential pressure across each HEPA filter bank shall be measured by capacitive pressure sensors.

   A minimum differential pressure measurement combined with a calculated total airflow shall be used to check for HEPA Filter bypass. Airflow shall be measured and monitored at the exhaust stack by air pressure probes located to effectively read average air velocity pressure and extract a total airflow. Loss of differential pressure without a coincident reduction in airflow is indicative of filter bypass. Impulse lines shall be stainless steel.

   Space temperatures from which C2 air is exhausted shall be measured as the inlet airstream temperature for each HEPA filter bank by platinum based resistance temperature detectors (RTDs). Thermocouples shall be used in less critical or in higher temperature streams, with careful attention to the design issues to avoid misapplication.

   The C2V exhaust air stream temperature shall at all times be above the dewpoint, therefore Relative Humidity (RH) for this emission unit shall not be a required HEPA operating parameter nor shall an indication device be required. Should design or operations change in such a way that RH becomes a key operating parameter for the HEPA banks of this emission unit, an indication device shall be required prior to implementing the change.

   Prior to cold commissioning the BARCT process must be completed for approval by WDOH for all indication devices and parameters for all the required BARCT controls and protective features of this emission unit.

   Prior to the receipt of waste material the operating ranges for each of the indication devices for all the required BARCT controls and protective features of this emission unit must be provide to WDOH for approval. [WAC 246-247-030(6); WAC 246-247-040(3); WAC 246-247-120]

6) No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:

   The building ventilation air associated with general laboratory work areas and offices shall be vented through emission unit LB-C2. LB-C2 general laboratory work areas and offices shall be maintained at radiological levels such that they may be accessed by personnel in street clothes with no requirement for personal protective equipment. [WAC 246-247-110(5); WAC 246-247-110(8); WAC 246-247-110(10); WAC 246-247-110(13)]

7) These Conditions and Limitations apply only to the construction of the emission unit and do not allow operation of the emission unit. Prior to operation of this emission unit under "hot commissioning activities" additional conditions and limitations must be obtained from WDOH. [WAC 246-247-060(1)]

8) A minimum of one year prior to cold commissioning of the Waste Treatment Plant, the licensee shall recalculate radionuclide feed rates, annual possession quantities, release rates, source terms, and MEI doses for all WTP emission units and submit this information to WDOH.

A minimum of one year prior to the receipt of waste material the licensee shall certify that the recalculated radionuclide feed rates, annual possession quantities, release rates, source terms, and MEI doses for all WTP emission units are still appropriate or recalculate and resubmit this information to WDOH together with a request for permission to commence waste processing. The WDOH shall consider this information prior to issuing a license to operate. The license to operate shall contain such additional conditions and limitations as WDOH shall deem necessary and appropriate. [WAC 246-247-110(10,11,12,13,14,15)]

9) DOE and its contractor are fully liable for the design of the Waste Treatment Plant to comply with all applicable laws and regulations and to keep commitments made in all applications to construct under WAC 246-247, including designs completed and proposed to the WDOH and portions not yet designed. [WAC 246-247-110(5)]

10) DOE shall construct the Waste Treatment Plant at its own risk. DOE shall remove or alter any control technology components, and/or any, foundations, support systems, or ancillary construction which are later found not to be in compliance with the applicable standards referenced in WAC 246-247-040 or which are not in compliance with conditions and limitations developed in the WTP permitting process. [WAC 246-247-040(3) & (4)]

11) Any additional licensing necessitated by plant design changes may require additional or different controls for radioactive air emissions. A needed change in the footprint of the plant based on these needs shall not be considered justification for not installing the required controls. [WAC 246-247-040(3) & (4)]

12) Approval of BARCT and operational procedures for the Waste Treatment Plant are based on the design plant radioactive waste processing capacity as estimated in the "Radioactive Air Emissions Notice of Construction Permit Application for the River Protection Project - Waste Treatment Plant," BNI Document Number 24590-WTP-RPT-ENV-01-008, Rev. 1, dated 14 June 2002. The Washington Department of Health reserves the right to require additional control technology and/or monitoring, different emissions limits, and different or additional conditions, and limitations in the case that future plant design changes should result in significantly different design radioactive waste throughput.

    Any changes in the design which constitute an increase in radioactive air emissions potential-to-emit subsequent to this approval may, at WDOH's discretion, constitute a modification of the facility, as defined by WAC 246-247-030(16), requiring additional licensing, including a resubmittal of BARCT and a new NOC. [WAC 246-247-040(3)]

13) Conditions and Limitations for construction activities must be documented in an established procedure matrix or commitment matrix database within 90 days after full construction authorization is received from WDOH. The procedure matrix or commitment matrix database for operational conditions shall be completed no later than 180 days before receipt of radioactive waste into the WTP to start Hot Commissioning and identify the specific procedures which will satisfy the Conditions and Limitations. This requirement may be satisfied for such of these Conditions and Limitations as are related only to the operational phase of radioactive waste processing (as opposed to the construction of the facility) by descriptions of specific procedures which will be completed no later than 90 days prior to the hot commissioning of the facility. [WAC 246-247-040(5); WAC 246-247-060(5); WAC 246-247-075(6); ASME NQA-1-1997]

14) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance.

[WAC 246-247-060-(2)(d)]

15) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. Prior to commencement of testing of a regulated system, the WTP shall provide a schedule for testing of all regulated components of that system to WDOH. The department reserves the right to observe such tests. [WAC 246-247-060(4)]

16) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards. [WAC 246-247-040(5); WAC 246-247-060(6); WAC 246-247-075(6); 40CFR61.93(b)(2)(iv); 40CFR61, Appendix B, Method 114]

17) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing. [(WAC 246-247-075(9) and (10)]

18) The facility must be able to demonstrate that workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures. [WAC 246-247-075(12)]

19) The facility must be able to demonstrate the reliability and accuracy of emissions data from this emission unit. [WAC 246-247-075(13)]

20) The Department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter. [WAC 246-247-080(1)]

21) The department may require an ALARACT demonstration at any time. [WAC 246-247-080(1)]

22) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H. [WAC 246-247-080(2)]

23) The facility shall report all measured or calculated emissions annually. [WAC 246-247-080(3)]

24) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5). [WAC 246-247-080(5)]

25) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity shall not be considered permanently shut down or completed until a report of closure is received and approved by the Department of Health.

    Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting requirements which are no longer applicable for that emission unit or activity. All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept

in accordance with (WAC 246-247-080(8). [WAC 246-247(6) and (8)]

26) All facilities must maintain records documenting the source of input parameters including the results of all measurements upon which they are based, the calculations and/or analytical methods used to derive values for input parameters, and the procedure used to determine effective dose equivalent. This documentation should be sufficient to allow an independent auditor to verify the accuracy of the determination made concerning the facility's compliance with the standard. These records must be kept at the site of the facility for at least five years and, upon request, be made available for inspection by the WDOH. [40 CFR 61.95; WAC 246-247-080(8)]

27) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection. WDOH inspectors shall be allowed to use audio/visual equipment to document inspections. [WAC 246-247-080(9)]

28) The facility shall make available, in a timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The USDOE shall allow access to classified documents by representatives of the department with the appropriate clearance and demonstrable need-to-know. [WAC 246-247-080(10)]

29) a) The DOE shall ensure all emission unit components, design, construction, testing and operation shall be carried out as described in the WDOH Code Compliance Matrix for LAB HVAC Systems, 24590-LAB-RPT-ENG-02-001, Rev A, dated November 15, 2002. [WAC 246-247-120]

b) Emission unit components design, construction, testing, and operation different from those identified in the WDOH Code Compliance Matrix for LAB HVAC Systems, 24590-LAB-RPT-ENG-02-001, Rev A, dated November 15, 2002 are not approved, and if carried out, are at risk of enforcement action pursuant to WAC 246-247-100. [WAC 246-247-120]

c) Should a deviation to a standard be identified after start of construction, WDOH approval of the deviation shall be obtained prior to installation of the system or component. The procedure for the compliance matrices maintenance shall be followed in this event. [WAC 246-247-120]

d) Within 90 days after starting activities granted by this approval, a procedure must be provided to WDOH identifying how the compliance matrix outlining compliance with the control technology standards shall be maintained and updated. [WAC 246-247-120]

30) Prior to installation of the following ventilation components, complete documentation verifying compliance with the applicable standards the WDOH Code Compliance Matrix for LAB HVAC Systems,24590-LAB-RPT-ENG-02-001, Rev A, dated November 15, 2002 shall be made available for review and approval by WDOH: HEPA filter housing, exhaust fans, dampers, ductwork, and indication devices. [WAC 246-247-120]

31) The monitoring system for this emission unit shall be designed and operated in full compliance to ANSI N13.1-1999. Prior to installation of emission unit monitoring systems final design of the monitoring systems shall be provided to WDOH for review and approval. [WAC 246-247-075(2); WAC 246-247-120; 40 CFR Part 61.93]

32) The total number of samples received annually in the analytical laboratory shall not exceed 6000 samples with an average sample volume not exceeding 15 ml. [WAC 246-247-030(5); WAC 246-47-110 (10)]

33) HEPA filters shall be tested in-place after installation and at least annually thereafter. The test shall be performed in accordance with Section TA of "Code on Nuclear Air and Gas Treatment, ASME AG-1-1997". Tests shall demonstrate that each filter bank has a removal efficiency no less than 99.95%. [WAC 246-247-120]

34) Radial flow HEPA filter qualification certification testing must be performed by an independent test facility in accordance with the requirements of "CODE ON NUCLEAR AIR AND GAS TREATMENT, ASME AG-1-1997", Section FC-5100. Prior to installation of the radial flow HEPA filters that are installed for hot commissioning, the certification test results shall be provided to WDOH for qualification concurrence of the radial flow HEPA filters to "CODE ON NUCLEAR AIR AND GAS TREATMENT, ASME AG-1-1997", Section FC-5100. [WAC 246-247-120]

35) Total design flow through each HEPA filter bank shall not exceed the maximum rated flowrate for the individual HEPA filters multiplied by the number of filters in the bank.

The actual flowrate through each filter bank shall be verified and results of this demonstration shall be presented to WDOH for approval prior to hot startup. [WAC 246-247-120]

36) The USDOE shall develop, and submit to WDOH for approval, criteria for an annual USDOE inspection of the overall system integrity of this unit (e.g., corrosion damage, leakage, vibration damage, structural damage, and component deterioration). This inspection shall include determination of need for any replacements. A log of inspection findings shall be maintained in a format approved for this emission unit by the WDOH. [WAC 246-247-120]

37) USDOE shall provide to WDOH for approval a proposal for tracking the annual possession quantity (APQ) for this emission unit to WDOH prior to hot commissioning. [WAC 246-247-080(7)]

38) For the equipment identified as control technology, ancillary equipment, protective features, and protective equipment under this approval, the USDOE shall:

-provide critical operating parameters;
-develop acceptable operating ranges;
-develop operating procedures to monitor and maintain these parameters;
-provide descriptions of procedures to WDOH for review and approval.

These actions shall be completed prior to receiving approval for accepting radioactive material into the WTP. [WAC 246-247-120]

39) The USDOE shall provide test results to demonstrate to the WDOH that HEPA filters in this emission control unit are operating at design removal efficiency or decontamination factor, as specified in the "Radioactive Air Emissions Notice of Construction Permit Application for the River Protection Project - Waste Treatment Plant ", BNI Document Number 24590-WTP-RPT-ENV-01-008, Rev.1, 14 June 2002. The results of these tests shall be provided to the WDOH at least 90 days prior to hot commissioning. [WAC 246-247-120]

40) The differential pressure across each HEPA filter bank shall be monitored, recorded, and trended. Specifications for instrumentation shall be provided to WDOH prior to installation.

Prior to hot commissioning, the range of differential pressure which shall be maintained across the HEPA filter bank shall be provided to WDOH for approval. [WAC 246-247-120]

41) Prior to cold commissioning, the USDOE shall provide documentation to the WDOH for approval to demonstrate that humidity in the airstream entering the HEPA filter bank shall be maintained below the manufacturer's specified maximum. [WAC 246-247-120]

42) If electrical power to operate exhaust fans for this emission unit fails, normal operations within this emission unit with the potential to produce particulates shall cease until power is restored. [WAC 246-247-120]

43) The following monitoring requirements are based on emissions estimated presented in the "Radioactive Air Emissions Notice of Construction Permit Application for the River Protection Project - Waste Treatment Plant ", BNI Document Number 24590-WTP-RPT-ENV-01-008, Rev.1, 14 June 2002. For emission unit LB-C2, periodic confirmatory emissions sampling for particulates shall be performed, with analyses for gross alpha and gross b/g. [WAC 246-247-040(1); WAC 246-247-075]

44) Analysis and quality assurance of stack sampling shall follow the requirements of 40 CFR 61 Appendix B Method 114 sections 3 and 4. [WAC 246-247-040(1); WAC 246-247-075]

45) All HEPA filter banks in this unit's emission control system shall be subjected to aerosol penetration tests in accordance with "CODE ON NUCLEAR AIR AND GAS TREATMENT, ASME AG-1-1997", and the results of these tests shall be provided to WDOH at least 90 days prior to hot commissioning. [WAC 246-247-120]

46) Air sample transport lines shall be designed to prevent moisture condensation within the lines. Design details shall be provided to WDOH prior to cold commissioning. [WAC 246-247-120]

47) WTP shall identify maintenance activities that will require localized controls for particulates. Design details of the controls shall be provided to WDOH for approval prior to hot commissioning. [WAC 246-247-120]

Approval Number: Not Assigned **NOC ID: 510**

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: CONSTRUCTION OF (WTP) LABORATORY

Emission Unit Name: LB-S1 **Emission Unit ID** 558

This is a MINOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **BARCT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	HEPA	1	One stage of HEPA filtration. A total of 16 banks of primary HEPAs 14 in operation and 2 in standby. Each bank contains 4 filters.
	Exhaust Fan	3	Two in operation and one in standby.

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
WAC 246-247-075	Appendix B, Method 114(3) and (4)	Gross Alpha and Gross Beta/Gamma	Shall be determined prior to cold commissioning
Sampling Requirements:	Record Sampling		

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

12/05/2002 NOC received June 26, 2002.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license (WAC 246-247-060(5)).
2) This emission unit does not have an abated PTE. This emission unit does not have an unabated PTE.
3) **No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:**
   the receipt, preparation and analysis of radioactive samples from the Pretreatment, LAW, and HLW production facilities. See process descriptions listed below for the individual emission units.
4) This NOC does not have "Annual Possession Quantity" limits.

5) The WDOH has determined that BARCT for emission unit LB-S1 is a system comprising the following control technology, ancillary equipment, protective features, and protective equipment, in the following order: a single stage of High-Efficiency Particulate Air (HEPA) filtration, and Exhaust Fans.

   The maximum differential pressure across each HEPA filter bank shall be measured by capacitive pressure sensors.

   A minimum differential pressure measurement combined with a calculated total airflow shall be used to check for HEPA Filter bypass. Airflow shall be measured and monitored at the exhaust stack by air pressure probes located to effectively read average air velocity pressure and extract a total airflow. Loss of differential pressure without a coincident reduction in airflow is indicative of filter bypass. Impulse lines shall be stainless steel.

   Space temperatures from which C3 air is exhausted shall be measured as the inlet airstream temperature for each HEPA filter bank by platinum based resistance temperature detectors (RTDs). Thermocouples shall be used in less critical or in higher temperature streams, with careful attention to the design issues to avoid misapplication.

   The C3V exhaust air stream temperature shall at all times be above the dewpoint, therefore Relative Humidity (RH) for this emission unit shall not be a required HEPA operating parameter nor shall an indication device be required. Should design or operations change in such a way that RH becomes a key operating parameter for the HEPA banks of this emission unit, an indication device shall be required prior to implementing the change.

   Prior to cold commissioning the BARCT process must be completed for approval by WDOH for all indication devices and parameters for all the required BARCT controls and protective features of this emission unit.

   Prior to the receipt of waste material the operating ranges for each of the indication devices for all the required BARCT controls and protective features of this emission unit must be provide to WDOH for approval. [WAC 246-247-030(6); WAC 246-247-040(3); WAC 246-247-120]

6) No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:

   Sample Receipt from the Pneumatic Transport System

   Containerized samples transported pneumatically shall be received in the lab marshalling room. The marshalling room shall consist of several cubicles housing the equipment necessary to:

   -Store sample bottles and carriers
   -Send sample bottles (in carriers) to the pretreatment, HLW vitrification and LAW vitrification plants
   -Separate samples from their respective carrier
   -Identify each sample and measure the associated radioactivity
   -Send samples with high radioactivity (greater than 0.01 Ci) to the receipt cell (analytical hot cell series) and send samples with low radioactivity (less than 0.01 Ci) to the receipt lab (rad labs)
   -Decontaminate sample carriers

   The emissions from this activity shall be vented through emission unit LB-S1.

Radiological Laboratories (Rad Labs)

The radiological laboratories (rad labs) shall be designed to support the preparation and analysis of moderately radioactive samples from each of the production facilities. The rad labs shall also supplement the analytical capabilities of the analytical hot cell series and support technology development and diagnostics, using materials that have very low or no radioactivity. The rad labs shall be capable of receiving sample aliquots from the hot cells via pneumatic transport or samples transported manually from the production facilities or from the hot cells.

Specifically, the rad labs shall include the facilities and equipment required to support the following activities:

-Total organic and inorganic analyses
-Quantitation of metals and anions
-Organic quantitation
-Radionuclide counting
-Sample receipt and (manual) transport
-X-ray spectrometry and X-ray diffraction analysis
-Scanning electron microscopy (SEM)
-Testing of glass coupons (e.g., toxicity characteristic leaching procedure [TCLP])
-Preparation of glass samples for elemental analysis
-General physical properties analysis

Laboratory Maintenance

The analytical laboratory maintenance shop shall provide space for performing preventive and corrective maintenance on laboratory equipment. The analytical laboratory maintenance shop shall comprise two shops, each in a separate potential radioactivity contamination area. The activities performed in the analytical laboratory maintenance shop shall consist of decontamination, maintenance, and storage of contaminated equipment such as hot cell manipulators. The C3 shop shall also contain compaction equipment for the reduction of solid waste generated in the rad lab. The activity performed in the C2 shop shall consist of the maintenance of equipment not expected to be radioactively contaminated such as electrical components, utilities systems components, and instruments. The following maintenance activities shall be performed in the laboratory workshop:

-Manipulator repair. Manipulators shall be pulled and transferred to the C3 workshop for decontamination. After contamination levels are reduced to within acceptable limits for hands-on maintenance, the manipulator shall be repaired using approved maintenance and radiological procedures.
-Valve Maintenance.
-Pump Maintenance.
-Exhaust Fan Maintenance.

[WAC 246-247-110(5); WAC 246-247-110(8); WAC 246-247-110(10); WAC 246-247-110(13)]

7) These Conditions and Limitations apply only to the construction of the emission unit and do not allow operation of the emission unit. Prior to operation of this emission unit under "hot commissioning activities" additional conditions and limitations must be obtained from WDOH. [WAC 246-247-

060(1)]

8) A minimum of one year prior to cold commissioning of the Waste Treatment Plant, the licensee shall recalculate radionuclide feed rates, annual possession quantities, release rates, source terms, and MEI doses for all WTP emission units and submit this information to WDOH.

   A minimum of one year prior to the receipt of waste material the licensee shall certify that the recalculated radionuclide feed rates, annual possession quantities, release rates, source terms, and MEI doses for all WTP emission units are still appropriate or recalculate and resubmit this information to WDOH together with a request for permission to commence waste processing. The WDOH shall consider this information prior to issuing a license to operate. The license to operate shall contain such additional conditions and limitations as WDOH shall deem necessary and appropriate. [WAC 246-247-110(10,11,12,13,14,15)]

9) DOE and its contractor are fully liable for the design of the Waste Treatment Plant to comply with all applicable laws and regulations and to keep commitments made in all applications to construct under WAC 246-247, including designs completed and proposed to the WDOH and portions not yet designed. [WAC 246-247-110(5)]

10) DOE shall construct the Waste Treatment Plant at its own risk. DOE shall remove or alter any control technology components, and/or any, foundations, support systems, or ancillary construction which are later found not to be in compliance with the applicable standards referenced in WAC 246-247-040 or which are not in compliance with conditions and limitations developed in the WTP permitting process. [WAC 246-247-040(3) & (4)]

11) Any additional licensing necessitated by plant design changes may require additional or different controls for radioactive air emissions. A needed change in the footprint of the plant based on these needs shall not be considered justification for not installing the required controls. [WAC 246-247-040 (3) & (4)]

12) Approval of BARCT and operational procedures for the Waste Treatment Plant are based on the design plant radioactive waste processing capacity as estimated in the "Radioactive Air Emissions Notice of Construction Permit Application for the River Protection Project - Waste Treatment Plant," BNI Document Number 24590-WTP-RPT-ENV-01-008, Rev. 1, dated 14 June 2002. The Washington Department of Health reserves the right to require additional control technology and/or monitoring, different emissions limits, and different or additional conditions, and limitations in the case that future plant design changes should result in significantly different design radioactive waste throughput.

    Any changes in the design which constitute an increase in radioactive air emissions potential-to-emit subsequent to this approval may, at WDOH's discretion, constitute a modification of the facility, as defined by WAC 246-247-030(16), requiring additional licensing, including a resubmittal of BARCT and a new NOC. [WAC 246-247-040(3)]

13) Conditions and Limitations for construction activities must be documented in an established procedure matrix or commitment matrix database within 90 days after full construction authorization is received from WDOH. The procedure matrix or commitment matrix database for operational conditions shall be completed no later than 180 days before receipt of radioactive waste into the WTP to start Hot Commissioning and identify the specific procedures which will satisfy the Conditions and Limitations. This requirement may be satisfied for such of these Conditions and Limitations as are related only to the operational phase of radioactive waste processing (as opposed to the construction of the facility) by descriptions of specific procedures which will be completed no later than 90 days prior to the hot

commissioning of the facility. [WAC 246-247-040(5); WAC 246-247-060(5); WAC 246-247-075(6); ASME NQA-1-1997]

14) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance. [WAC 246-247-060-(2)(d)]

15) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. Prior to commencement of testing of a regulated system, the WTP shall provide a schedule for testing of all regulated components of that system to WDOH. The department reserves the right to observe such tests. [WAC 246-247-060(4)]

16) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards. [WAC 246-247-040(5); WAC 246-247-060(6); WAC 246-247-075(6); 40CFR61.93(b)(2)(iv); 40CFR61, Appendix B, Method 114]

17) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing. [(WAC 246-247-075(9) and (10)]

18) The facility must be able to demonstrate that workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures. [WAC 246-247-075(12)]

19) The facility must be able to demonstrate the reliability and accuracy of emissions data from this emission unit. [WAC 246-247-075(13)]

20) The Department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter. [WAC 246-247-080(1)]

21) The department may require an ALARACT demonstration at any time. [WAC 246-247-080(1)]

22) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H. [WAC 246-247-080(2)]

23) The facility shall report all measured or calculated emissions annually. [WAC 246-247-080(3)]

24) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5). [WAC 246-247-080(5)]

25) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity shall not be considered permanently shut down or completed until a report of closure is received and approved by the Department of Health.

Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing

permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting requirements which are no longer applicable for that emission unit or activity. All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8). [WAC 246-247(6) and (8)]

26) All facilities must maintain records documenting the source of input parameters including the results of all measurements upon which they are based, the calculations and/or analytical methods used to derive values for input parameters, and the procedure used to determine effective dose equivalent. This documentation should be sufficient to allow an independent auditor to verify the accuracy of the determination made concerning the facility's compliance with the standard. These records must be kept at the site of the facility for at least five years and, upon request, be made available for inspection by the WDOH. [40 CFR 61.95; WAC 246-247-080(8)]

27) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection. WDOH inspectors shall be allowed to use audio/visual equipment to document inspections. [WAC 246-247-080(9)]

28) The facility shall make available, in a timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The USDOE shall allow access to classified documents by representatives of the department with the appropriate clearance and demonstrable need-to-know. [WAC 246-247-080(10)]

29) a) The DOE shall ensure all emission unit components, design, construction, testing and operation shall be carried out as described in the WDOH Code Compliance Matrix for LAB HVAC Systems,24590-LAB-RPT-ENG-02-001, Rev A, dated November 15, 2002. [WAC 246-247-120]

b) Emission unit components design, construction, testing, and operation different from those identified in the WDOH Code Compliance Matrix for LAB HVAC Systems, 24590-LAB-RPT-ENG-02-001, Rev A, dated November 15, 2002 are not approved, and if carried out, are at risk of enforcement action pursuant to WAC 246-247-100. [WAC 246-247-120]

c) Should a deviation to a standard be identified after start of construction, WDOH approval of the deviation shall be obtained prior to installation of the system or component. The procedure for the compliance matrices maintenance shall be followed in this event. [WAC 246-247-120]

d) Within 90 days after starting activities granted by this approval, a procedure must be provided to WDOH identifying how the compliance matrix outlining compliance with the control technology standards shall be maintained and updated. [WAC 246-247-120]

30) Prior to installation of the following ventilation components, complete documentation verifying compliance with the applicable standards the WDOH Code Compliance Matrix for LAB HVAC Systems,24590-LAB-RPT-ENG-02-001, Rev A, dated November 15, 2002 shall be made available for review and approval by WDOH: HEPA filter housing, exhaust fans, dampers, ductwork, and indication devices. [WAC 246-247-120]

31) The monitoring system for this emission unit shall be designed and operated in full compliance to ANSI N13.1-1999. Prior to installation of emission unit monitoring systems final design of the monitoring systems shall be provided to WDOH for review and approval. [WAC 246-247-075(2); WAC 246-247-120; 40 CFR Part 61.93]

32) The total number of samples received annually in the analytical laboratory shall not exceed 6000 samples with an average sample volume not exceeding 15 ml. [WAC 246-247-030(5); WAC 246-47-110(10)]

33) HEPA filters shall be tested in-place after installation and at least annually thereafter. The test shall be performed in accordance with Section TA of "Code on Nuclear Air and Gas Treatment, ASME AG-1-1997". Tests shall demonstrate that each filter bank has a removal efficiency no less than 99.95%. [WAC 246-247-120]

34) Radial flow HEPA filter qualification certification testing must be performed by an independent test facility in accordance with the requirements of "CODE ON NUCLEAR AIR AND GAS TREATMENT, ASME AG-1-1997", Section FC-5100. Prior to installation of the radial flow HEPA filters that are installed for hot commissioning, the certification test results shall be provided to WDOH for qualification concurrence of the radial flow HEPA filters to "CODE ON NUCLEAR AIR AND GAS TREATMENT, ASME AG-1-1997", Section FC-5100. [WAC 246-247-120]

35) Total design flow through each HEPA filter bank shall not exceed the maximum rated flowrate for the individual HEPA filters multiplied by the number of filters in the bank.

    The actual flowrate through each filter bank shall be verified and results of this demonstration shall be presented to WDOH for approval prior to hot startup. [WAC 246-247-120]

36) The USDOE shall develop, and submit to WDOH for approval, criteria for an annual USDOE inspection of the overall system integrity of this unit (e.g., corrosion damage, leakage, vibration damage, structural damage, and component deterioration). This inspection shall include determination of need for any replacements. A log of inspection findings shall be maintained in a format approved for this emission unit by the WDOH. [WAC 246-247-120]

37) USDOE shall provide to WDOH for approval a proposal for tracking the annual possession quantity (APQ) for this emission unit to WDOH prior to hot commissioning. [WAC 246-247-080(7)]

38) For the equipment identified as control technology, ancillary equipment, protective features, and protective equipment under this approval, the USDOE shall:

    -provide critical operating parameters;
    -develop acceptable operating ranges;
    -develop operating procedures to monitor and maintain these parameters;
    -provide descriptions of procedures to WDOH for review and approval.

    These actions shall be completed prior to receiving approval for accepting radioactive material into the WTP. [WAC 246-247-120]

39) The USDOE shall provide test results to demonstrate to the WDOH that HEPA filters in this emission control unit are operating at design removal efficiency or decontamination factor, as specified in the "Radioactive Air Emissions Notice of Construction Permit Application for the River Protection Project - Waste Treatment Plant ", BNI Document Number 24590-WTP-RPT-ENV-01-008, Rev.1, 14

June 2002. The results of these tests shall be provided to the WDOH at least 90 days prior to hot commissioning. [WAC 246-247-120]

40) The differential pressure across each HEPA filter bank shall be monitored, recorded, and trended. Specifications for instrumentation shall be provided to WDOH prior to installation.

    Prior to hot commissioning, the range of differential pressure which shall be maintained across the HEPA filter bank shall be provided to WDOH approval. [WAC 246-247-120]

41) Prior to cold commissioning, the USDOE shall provide documentation to the WDOH for approval to demonstrate that humidity in the airstream entering the HEPA filter bank shall be maintained below the manufacturer's specified maximum. [WAC 246-247-120]

42) If electrical power to operate exhaust fans for this emission unit fails, normal operations within this emission unit with the potential to produce particulates shall cease until power is restored. [WAC 246-247-120]

43) The following monitoring requirements are based on emissions estimated presented in the "Radioactive Air Emissions Notice of Construction Permit Application for the River Protection Project - Waste Treatment Plant ", BNI Document Number 24590-WTP-RPT-ENV-01-008, Rev.1, 14 June 2002. For emission unit LB-S1, periodic confirmatory emissions sampling for particulates shall be performed, with analyses for gross alpha and gross b/g. [WAC 246-247-040(1); WAC 246-247-075]

44) Analysis and quality assurance of stack sampling shall follow the requirements of 40 CFR 61 Appendix B Method 114 sections 3 and 4. [WAC 246-247-040(1); WAC 246-247-075]

45) All HEPA filter banks in this unit's emission control system shall be subjected to aerosol penetration tests in accordance with "CODE ON NUCLEAR AIR AND GAS TREATMENT, ASME AG-1-1997", and the results of these tests shall be provided to WDOH at least 90 days prior to hot commissioning. [WAC 246-247-120]

46) WTP shall identify maintenance activities that will require localized controls for particulates. Such activities shall include, at a minimum, the C3 shop compaction equipment for the reduction of solid waste generated in the radioactive materials laboratory. Design details of the controls shall be provided to WDOH for approval prior to hot commissioning. [WAC 246-247-120]

Approval Number: Not Assigned **NOC ID: 510**

DEPARTMENT OF HEALTH
RADIOACTIVE AIR EMISSIONS
NOTICE OF CONSTRUCTION
APPROVAL FOR

PROJECT TITLE: CONSTRUCTION OF (WTP) LABORATORY

Emission Unit Name: LB-S2 **Emission Unit ID** 559

This is a MINOR, ACTIVELY ventilated emission unit.

This emission unit requires the following Abatement Technology:

Applicable Requirements: **BARCT**

ALARACT [WAC 246-247-040(4)]
BARCT [WAC 246-247-040(3)]

Zone or Area:	Abatement Technology	Required # of Units	Additional Description/Conditions
	HEPA	2	Two stages of HEPA filtration. A total of eight banks of primary HEPAs six in operation and two in standby. Each bank contains four filters. A total eight banks of secondary HEPAs six in operation and two in standby. Each bank contains four filters.
	Exhaust Fan	2	One in operation and one in standy

Additional abatement technologies required by this Notice of Construction will be listed in the Conditions and Limitations section.

This emission unit has the following Monitoring and Sampling Requirements:

Applicable Requirements: Monitoring, Testing and Quality Assurance WAC 246-247-075

Federal and State Regulatory	Monitoring and Testing Procedure	Radionuclides Requiring Measurement	Sampling Frequency
WAC 246-247-075	Appendix B, Method 114(3) and (4)	Radionuclides which contribute 10% of the unabated dose or greater, produce an unabated dose of 0.1 mrem/yr, and radionuclides that contribute 25% of the abated dose or greater. At a minimum analyses for gross alpha and gross beta/gamma.	Continuous

Sampling Requirements: Record Sampling

Additional monitoring or sampling requirements established by this NOC will be listed in the Conditions and Limitations section.

Change History

12/05/2002 NOC received June 26, 2002.

CONDITIONS AND LIMITATIONS

1) The U.S. Department of Energy shall comply with all Conditions and Limitations of this license

(WAC 246-247-060(5)).

2) This emission unit does not have an abated PTE. This emission unit does not have an unabated PTE.

3) **No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:**
the receipt, preparation and analysis of radioactive samples from the Pretreatment, LAW, and HLW production facilities. See process descriptions listed below for the individual emission units.

4) This NOC does not have "Annual Possession Quantity" limits.

5) The WDOH has determined that BARCT for emission unit LB-S2 is a system comprising the following control technology, ancillary equipment, protective features, and protective equipment, in the following order: two stages of High-Efficiency Particulate Air (HEPA) filtration in series, and Exhaust Fans.

The maximum differential pressure across each HEPA filter bank shall be measured by capacitive pressure sensors.

A minimum differential pressure measurement combined with a calculated total airflow shall be used to check for HEPA Filter bypass. Airflow shall be measured and monitored at the exhaust stack by air pressure probes located to effectively read average air velocity pressure and extract a total airflow. Loss of differential pressure without a coincident reduction in airflow is indicative of filter bypass. Impulse lines shall be stainless steel.

Space temperatures from which C5 air is exhausted shall be measured as the inlet airstream temperature for each HEPA filter bank by platinum based resistance temperature detectors (RTDs). Thermocouples shall be used in less critical or in higher temperature streams, with careful attention to the design issues to avoid misapplication.

The C5V exhaust air stream temperature shall at all times be above the dewpoint, therefore Relative Humidity (RH) for this emission unit shall not be a required HEPA operating parameter nor shall an indication device be required. Should design or operations change in such a way that RH becomes a key operating parameter for the HEPA banks of this emission unit, an indication device shall be required prior to implementing the change.

Prior to cold commissioning the BARCT process must be completed for approval by WDOH for all indication devices and parameters for all the required BARCT controls and protective features of this emission unit.

Prior to the receipt of waste material the operating ranges for each of the indication devices for all the required BARCT controls and protective features of this emission unit must be provide to WDOH for approval. [WAC 246-247-030(6); WAC 246-247-040(3); WAC 246-247-120]

6) No activities, other than those explicitly described within this approval, shall be conducted without prior written approval. The approved activities are limited to:

Operation of hot cells as described below:

Analytical Hot Cell Series

The analytical hot cell series shall be designed to provide sample preparation and analyses required to support production at the pretreatment and HLW vitrification facilities. This series of hot cells shall be capable of accepting samples taken automatically from each of the production facilities (using pneumatic transport). The analytical hot cell series shall also be capable of accepting samples transported manually. Some of these samples shall be transported to the technology hot cell series or to the rad labs either directly or after dilution, or after stripping of the radioactive content.

Specifically, the analytical hot cell series shall include facilities and equipment required to perform the following activities:

-Sample receipt and transport
-Dilution, fusion, and dissolution required to prepare samples for subsequent analysis
-Extraction for organic analyses
-Total organic and inorganic carbon analyses
-Metal and anion quantitation
-Waste collection and transport

Technology Hot Cell Series

The technology hot cell series shall be designed to support process technology development and diagnostics. This series of hot cells shall be capable of accepting samples transported by trolley from the receipt cell in the analytical hot cell series.

Specifically, the technology hot cell series shall include the facilities and equipment required to support the following activities:

-Preparation of samples for lab-scale vitrification
-Vitrification of prepared samples
-Testing of glass coupons (e.g., toxicity characteristic leaching procedure [TCLP] and product consistency test [PCT])
-Ultrafilter technology diagnostics
-Ion-exchange media diagnostics
-Evaporator operational support and diagnostics
-Preparation of glass samples for elemental analysis
-General physical properties analysis

Laboratory Waste Management

Small volumes of solid waste shall be accumulated in the hot cells until the quantity is sufficient to fill a 55 gallon drum. Wastes shall be transferred into 55-gallons drums using a bagless transfer system. Waste from the hot cells shall then be transferred to the waste accumulation area where waste management, and waste treatment activities shall be conducted. Ventilation flow from the waste accumulation area shall be routed to the C5 HEPA filtration system.

Aqueous radioactive liquid collected from the laboratory C5 storage tanks shall be transferred to the pretreatment plant for processing. Solid and organic liquid wastes shall be packaged and transferred to a on-site waste storage plant awaiting final disposition. [WAC 246-247-110(5); WAC 246-247-

110(8); WAC 246-247-110(10); WAC 246-247-110(13)]

7) These Conditions and Limitations apply only to the construction of the emission unit and do not allow operation of the emission unit. Prior to operation of this emission unit under "hot commissioning activities" additional conditions and limitations must be obtained from WDOH. [WAC 246-247-060(1)]

8) A minimum of one year prior to cold commissioning of the Waste Treatment Plant, the licensee shall recalculate radionuclide feed rates, annual possession quantities, release rates, source terms, and MEI doses for all WTP emission units and submit this information to WDOH.

   A minimum of one year prior to the receipt of waste material the licensee shall certify that the recalculated radionuclide feed rates, annual possession quantities, release rates, source terms, and MEI doses for all WTP emission units are still appropriate or recalculate and resubmit this information to WDOH together with a request for permission to commence waste processing. The WDOH shall consider this information prior to issuing a license to operate. The license to operate shall contain such additional conditions and limitations as WDOH shall deem necessary and appropriate. [WAC 246-247-110(10,11,12,13,14,15)]

9) DOE and its contractor are fully liable for the design of the Waste Treatment Plant to comply with all applicable laws and regulations and to keep commitments made in all applications to construct under WAC 246-247, including designs completed and proposed to the WDOH and portions not yet designed. [WAC 246-247-110(5)]

10) DOE shall construct the Waste Treatment Plant at its own risk. DOE shall remove or alter any control technology components, and/or any, foundations, support systems, or ancillary construction which are later found not to be in compliance with the applicable standards referenced in WAC 246-247-040 or which are not in compliance with conditions and limitations developed in the WTP permitting process. [WAC 246-247-040(3) & (4)]

11) Any additional licensing necessitated by plant design changes may require additional or different controls for radioactive air emissions. A needed change in the footprint of the plant based on these needs shall not be considered justification for not installing the required controls. [WAC 246-247-040(3) & (4)]

12) Approval of BARCT and operational procedures for the Waste Treatment Plant are based on the design plant radioactive waste processing capacity as estimated in the "Radioactive Air Emissions Notice of Construction Permit Application for the River Protection Project - Waste Treatment Plant," BNI Document Number 24590-WTP-RPT-ENV-01-008, Rev. 1, dated 14 June 2002. The Washington Department of Health reserves the right to require additional control technology and/or monitoring, different emissions limits, and different or additional conditions, and limitations in the case that future plant design changes should result in significantly different design radioactive waste throughput.

    Any changes in the design which constitute an increase in radioactive air emissions potential-to-emit subsequent to this approval may, at WDOH's discretion, constitute a modification of the facility, as defined by WAC 246-247-030(16), requiring additional licensing, including a resubmittal of BARCT and a new NOC. [WAC 246-247-040(3)]

13) Conditions and Limitations for construction activities must be documented in an established procedure matrix or commitment matrix database within 90 days after full construction authorization is received from WDOH. The procedure matrix or commitment matrix database for operational conditions shall

be completed no later than 180 days before receipt of radioactive waste into the WTP to start Hot Commissioning and identify the specific procedures which will satisfy the Conditions and Limitations. This requirement may be satisfied for such of these Conditions and Limitations as are related only to the operational phase of radioactive waste processing (as opposed to the construction of the facility) by descriptions of specific procedures which will be completed no later than 90 days prior to the hot commissioning of the facility. [WAC 246-247-040(5); WAC 246-247-060(5); WAC 246-247-075(6); ASME NQA-1-1997]

14) If this emission unit is not in compliance with the standards in WAC 246-247-040 during construction or operation, the department reserves the right to require modifications to bring it into compliance. [WAC 246-247-060-(2)(d)]

15) The facility shall notify the department seven days in advance of any planned pre-operational testing of the emission unit's control, monitoring or containment systems. Prior to commencement of testing of a regulated system, the WTP shall provide a schedule for testing of all regulated components of that system to WDOH. The department reserves the right to observe such tests. [WAC 246-247-060(4)]

16) The facility must be able to demonstrate that it has a quality assurance program compatible with applicable national standards. [WAC 246-247-040(5); WAC 246-247-060(6); WAC 246-247-075(6); 40CFR61.93(b)(2)(iv); 40CFR61, Appendix B, Method 114]

17) The department retains the right to conduct stack sampling, environmental monitoring or other testing around this unit to assure compliance. If directed by the department, the facility must make provision for such testing. [(WAC 246-247-075(9) and (10)]

18) The facility must be able to demonstrate that workers associated with this emission unit are trained in the use and maintenance of control and monitoring systems, and in the performance of associated tests and emergency procedures. [WAC 246-247-075(12)]

19) The facility must be able to demonstrate the reliability and accuracy of emissions data from this emission unit. [WAC 246-247-075(13)]

20) The Department reserves the right to inspect and audit all construction activities, equipment, operations, documents, data and other records related to compliance with the requirements of this chapter. [WAC 246-247-080(1)]

21) The department may require an ALARACT demonstration at any time. [WAC 246-247-080(1)]

22) The facility must meet all reporting and record keeping requirements of 40 CFR 61, Subpart H. [WAC 246-247-080(2)]

23) The facility shall report all measured or calculated emissions annually. [WAC 246-247-080(3)]

24) The facility shall report to the department within 24 hours, any unexpected release of radioactivity, shutdown or other condition that, if allowed to persist, or lasts more than four hours, would result in the emission of radionuclides in excess of any standards or limitation in the license. Applicable standards (WAC 246-247-040) include unit specific emission limits (paragraph 5), the offsite dose standard (paragraph 1), BARCT (paragraph 3) or ALARACT (paragraph 4), whichever is applicable, or any limitation included in this approval (paragraph 5). [WAC 246-247-080(5)]

25) Prior to permanent shut down of an emission unit or completion of an activity, the permittee shall file a report of closure with the Department of Health. The report of closure shall include the date of the shutdown and indicate whether, despite cessation of operation, there is still a potential for radioactive

air emissions and a need for any active or passive ventilation system with emission control and/or monitoring devices. An emission unit or activity shall not be considered permanently shut down or completed until a report of closure is received and approved by the Department of Health.

Once an emission unit is permanently shut down or an activity is completed, thereby rendering existing permit terms and conditions irrelevant, the permittee shall not be required, after the shutdown or completion, to meet any monitoring, record keeping, and reporting requirements which are no longer applicable for that emission unit or activity. All records, relating to the shut down emission unit or completion of an activity, generated while the emission unit or activity was in operation, shall be kept in accordance with (WAC 246-247-080(8). [WAC 246-247(6) and (8)]

26) All facilities must maintain records documenting the source of input parameters including the results of all measurements upon which they are based, the calculations and/or analytical methods used to derive values for input parameters, and the procedure used to determine effective dose equivalent. This documentation should be sufficient to allow an independent auditor to verify the accuracy of the determination made concerning the facility's compliance with the standard. These records must be kept at the site of the facility for at least five years and, upon request, be made available for inspection by the WDOH. [40 CFR 61.95; WAC 246-247-080(8)]

27) The facility shall ensure all emissions units are fully accessible to department inspectors. In the event the hazards associated with accessibility to a unit require training and/or restriction or requirements for entry, the facility owner or operator shall inform the department, prior to arrival, of those restrictions or requirements. The owner or operator shall be responsible for providing the necessary training, escorts, and support services to allow the department to inspect the facility. At a minimum for unannounced inspections, such requirements or restrictions must be told to inspectors to provide an opportunity for inspectors to meet those requirements prior to the inspection. WDOH inspectors shall be allowed to use audio/visual equipment to document inspections. [WAC 246-247-080(9)]

28) The facility shall make available, in a timely manner, all documents requested by the department for review. The facility shall allow the department to review documents in advance of an inspection. The USDOE shall allow access to classified documents by representatives of the department with the appropriate clearance and demonstrable need-to-know. [WAC 246-247-080(10)]

29) a) The DOE shall ensure all emission unit components, design, construction, testing and operation shall be carried out as described in the WDOH Code Compliance Matrix for LAB HVAC Systems, 24590-LAB-RPT-ENG-02-001, Rev A, dated November 15, 2002. [WAC 246-247-120]

b) Emission unit components design, construction, testing, and operation different from those identified in the WDOH Code Compliance Matrix for LAB HVAC Systems, 24590-LAB-RPT-ENG-02-001, Rev A, dated November 15, 2002 are not approved, and if carried out, are at risk of enforcement action pursuant to WAC 246-247-100. [WAC 246-247-120]

c) Should a deviation to a standard be identified after start of construction, WDOH approval of the deviation shall be obtained prior to installation of the system or component. The procedure for the compliance matrices maintenance shall be followed in this event. [WAC 246-247-120]

d) Within 90 days after starting activities granted by this approval, a procedure must be provided to WDOH identifying how the compliance matrix outlining compliance with the control technology standards shall be maintained and updated. [WAC 246-247-120]

30) Prior to installation of the following ventilation components, complete documentation verifying compliance with the applicable standards the WDOH Code Compliance Matrix for LAB HVAC Systems, 24590-LAB-RPT-ENG-02-001, Rev A, dated November 15, 2002 shall be made available for review and approval by WDOH: HEPA filter housing, exhaust fans, dampers, ductwork, and indication devices. [WAC 246-247-120]

31) The monitoring system for this emission unit shall be designed and operated in full compliance to ANSI N13.1-1999. Prior to installation of emission unit monitoring systems final design of the monitoring systems shall be provided to WDOH for review and approval. [WAC 246-247-075(2); WAC 246-247-120; 40 CFR Part 61.93]

32) The total number of samples received annually in the analytical laboratory shall not exceed 6000 samples with an average sample volume not exceeding 15 ml. [WAC 246-247-030(5); WAC 246-47-110 (10)]

33) HEPA filters shall be tested in-place after installation and at least annually thereafter. The test shall be performed in accordance with Section TA of "Code on Nuclear Air and Gas Treatment, ASME AG-1-1997".

    Tests shall demonstrate that each filter bank has a removal efficiency no less than 99.95%. [WAC 246-247-120]

34) Radial flow HEPA filter qualification certification testing must be performed by an independent test facility in accordance with the requirements of "CODE ON NUCLEAR AIR AND GAS TREATMENT, ASME AG-1-1997", Section FC-5100. Prior to installation of the radial flow HEPA filters that are installed for hot commissioning, the certification test results shall be provided to WDOH for qualification concurrence of the radial flow HEPA filters to "CODE ON NUCLEAR AIR AND GAS TREATMENT, ASME AG-1-1997", Section FC-5100. [WAC 246-247-120]

35) Total design flow through each HEPA filter bank shall not exceed the maximum rated flowrate for the individual HEPA filters multiplied by the number of filters in the bank.

    The actual flowrate through each filter bank shall be verified and results of this demonstration shall be presented to WDOH for approval prior to hot startup. [WAC 246-247-120]

36) The USDOE shall develop, and submit to WDOH for approval, criteria for an annual USDOE inspection of the overall system integrity of this unit (e.g., corrosion damage, leakage, vibration damage, structural damage, and component deterioration). This inspection shall include determination of need for any replacements. A log of inspection findings shall be maintained in a format approved for this emission unit by the WDOH. [WAC 246-247-120]

37) USDOE shall provide to WDOH for approval a proposal for tracking the annual possession quantity (APQ) for this emission unit to WDOH prior to hot commissioning. [WAC 246-247-080 (7)]

38) For the equipment identified as control technology, ancillary equipment, protective features, and protective equipment under this approval, the USDOE shall:

    -provide critical operating parameters;
    -develop acceptable operating ranges;
    -develop operating procedures to monitor and maintain these parameters;
    -provide descriptions of procedures to WDOH for review and approval.

These actions shall be completed prior to receiving approval for accepting radioactive material into the WTP. [WAC 246-247-120]

39) The USDOE shall provide test results to demonstrate to the WDOH that HEPA filters in this emission control unit are operating at design removal efficiency or decontamination factor, as specified in the "Radioactive Air Emissions Notice of Construction Permit Application for the River Protection Project - Waste Treatment Plant ", BNI Document Number 24590-WTP-RPT-ENV-01-008, Rev.1, 14 June 2002. The results of these tests shall be provided to the WDOH at least 90 days prior to hot commissioning. [WAC 246-247-120]

40) The differential pressure across each HEPA filter bank shall be monitored, recorded, and trended. Specifications for instrumentation shall be provided to WDOH prior to installation.

    Prior to hot commissioning, the range of differential pressure which shall be maintained across the HEPA filter bank shall be provided to WDOH for approval. [WAC 246-247-120]

41) Prior to cold commissioning, the USDOE shall provide documentation to the WDOH for approval to demonstrate that humidity in the airstream entering the HEPA filter bank shall be maintained below the manufacturer's specified maximum. [WAC 246-247-120]

42) If electrical power to operate exhaust fans for this emission unit fails, normal operations within this emission unit with the potential to produce particulates shall cease until power is restored. [WAC 246-247-120]

43) The following monitoring requirements are based on emissions estimated presented in the "Radioactive Air Emissions Notice of Construction Permit Application for the River Protection Project - Waste Treatment Plant ", BNI Document Number 24590-WTP-RPT-ENV-01-008, Rev.1, 14 June 2002. Emission unit LB-S2 shall be continuously monitored. Radionuclides which contribute 10% of the unabated dose or greater, produce a unabated dose of 0.1mrem/yr, and radionuclides that contribute 25% of the abated dose or greater shall be sampled, analyzed, and reported. This shall include at a minimum analyses for gross alpha and gross b/g.

    Prior to hot commissioning, the procedure to manage down time or failure time of continuous sampling and monitoring equipment will be developed and submitted to WDOH for review and approval. [WAC 246-247-040(1); WAC 246-247-075]

44) Analysis and quality assurance of stack sampling shall follow the requirements of 40 CFR 61 Appendix B Method 114 sections 3 and 4. [WAC 246-247-040(1); WAC 246-247-075]

45) All HEPA filter banks in this unit's emission control system shall be subjected to aerosol penetration tests in accordance with "CODE ON NUCLEAR AIR AND GAS TREATMENT, ASME AG-1-1997", and the results of these tests shall be provided to WDOH at least 90 days prior to hot commissioning. [WAC 246-247-120]

46) WTP shall identify maintenance activities that will require localized controls for particulates. Design details of the controls shall be provided to WDOH for approval prior to hot commissioning. [WAC 246-247-120]